RELATIONSHIP OF PLO WITH DK/DP/NA



TERMINOLOGY





01 - GRADUATE ATTRIBUTE /PO /PLO

03 - WELL-DEFINED ENGINEERING PROBLEM (DP)



GRADUATE **ATTRIBUTES/ PO/ PLO**

PROBLEM ANALYSIS

Identify and analyze well-defined engineering problems reaching substantiated conclusions using codified methods of analysis specific to their field of activity (DK1 to DK4);

INVESTIGATION

Investigation: Conduct investigations of well-defined problems; locate and search relevant codes and catalogues, conduct standard tests and measurements:



KNOWLEDGE

Apply knowledge of applied mathematics, applied science, engineering fundamentals and an engineering specialization as specified in DK1 to DK4 respectively to wide practical procedures and practices;

DESIGN/DEVELOPMENT OF SOLUTIONS

Design solutions for well-defined technical problems and assist with the design of systems, components or processes to meet specified needs with appropriate consideration for public health and safety, cultural, societal, and environmental considerations (DK5);



THE ENGINEER & SOCIETY

Demonstrate knowledge of the societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to engineering technician practice and solutions to well-defined engineering problems (DK7);

PO6

PO5

MODERN TOOL USAGE

Apply appropriate techniques, resources, and modern engineering and IT tools to well-defined engineering problems, with an awareness of the limitations (DK6);

GRADUATE **ATTRIBUTE/ PO/ PLO**

ETHICS

Ethics: Understand and commit to professional ethics and responsibilities and norms of technician practice (DK7);

COMMUNICATION

Communicate effectively on welldefined engineering activities with the engineering community and with society at large, by being able to comprehend the work of others, document their own work, and give and receive clear instructions:



P010

PO7

ENVIRONMENT & SUSTAINABILITY

Understand and evaluate the sustainability and impact of engineering technician work in the solution of well-defined engineering problems in societal and environmental contexts (DK7);

INDIVIDUAL & **TEAMWORK**

PO9

Function effectively as an individual, and as a member in diverse technical teams:

Demonstrate knowledge and understanding of engineering management principles and apply these to one's own work, as a member or leader in a technical team and to manage projects in multidisciplinary environments;



LIFE-LONG LEARNING

Recognize the need for, and have the ability for independent updating in the face of specialized technical knowledge (DK8)

PO12

PROJECT MGMT & FINANCE

P011

DK - KNOWLEDGE PROFILE





:Procedural mathematics, numerical analysis, statistics applicable in a subdiscipline

> A coherent procedural formulation of engineering fundamentals required in an accepted sub-discipline

Engineering specialist knowledge that provides the body of knowledge for an accepted subdiscipline





DP - WELL-DEFINED ENGINEERING **PROBLEM / DUBLIN WELL-DEFINED PROBLEM SOLVING**

HAVE CHARACTERISTIC (DP1) AND SOME OR ALL OF DP2 TO DP7 (DP1 + 2 OTHER DP)

DP TELAH DITETAPKAN MELALUI PENYATAAN PLO ETAC (RUJUK MANUAL ETAC 2020)

DP ATTRIBUTES





DEPTH OF KNOWLEDGE

 DP1: Cannot be resolved without extensive practical knowledge as reflected in DK5 and DK6 supported by theoritical knowledge defined in DK3 and DK4.









Range of Conflicting

Requirements

 DP2: Involve several issues, but with few of these exerting conflicting constraints. DP3 Depth of Analysis Required

DP3: Can be solved in standardized ways





 DP4: Are frequently encountered and thus familiar to most practitioners in the practice

area



Extent of Applicable Godes

 DP5: Are encompassed by standards and/or documented codes of practice.

DP6 **Extent of Stakeholders Involvement & Level of Conflicting Requirements**

 DP6: Involve a limited range of stakeholders with differing needs





DP7: Are discreet components of engineering systems



NA WELL-DEFI ENGINEERING ACTIVITIES



PO10:



 Communicate effectively on welldefined engineering activities with the engineering community and with society at large, by being able to comprehend the work of others, document their own work, and give and receive clear instructions

ATTRIBUTES / CHARACTERISTICS

NA1 - RANGE OF RESOURCES

NA1: Involve a limited range of resources (eg: people, money, equipment materials, information and technologies)

NA2 - LEVEL OF INTERACTIONS

NA2: Require resolution of interactions between limited technical & engineering issues with little or no impact of wider issues



NA3 - INNOVATION

NA3: Involve the use of existing materials techniques, or processes in modified or new ways

NA **ATTRIBUTES / CHARACTERISTICS**

NA4 - CONSEQUENCES **TO SOCIETY & THE ENVIRONMENT**

NA4: Have consequences that are locally important & not far-reaching

NA5: Require a knowledge of practical procedures & practices for widely-applied operations & processes



NA5 - FAMILIARITY

PO ETAC	TECHNICIAN GRADUATES - Well-Defined Engineering Problems/Activities		Hubungkait Antara PO ETAC – DK/DP/NA
	DA-DK's	DP/NA	
1. Engineering Knowledge	DK1-DK4	DP	
2. Problem Analysis	DK1-DK4	DP	REFER TO PO STATEMENT IN ETAC MANUAL : well-defined problem have been stated to the PO 2, PO3, PO 4,PO5, PO6, PO7
Design/Development of Solutions	DK5	DP	
4. Investigation	DK8	DP	
5. Modern Tool Usage	DK2,DK6	DP	
6. The Engineer and Society	DK1, DK5,DK7	DP	
7. Ethics	DK9		
8. Individual and Team work	DK9		
9. Communication		NA	
10. Project Management and Finance			
11. Lifelong Learning	DK8		

HUBUNGKAIT SILIBUS, PENILAIAN & RUBRIK ETAC

Menggunapakai knowledge profile (DK) sebagai asas pengetahuan yang telah ditetapkan dalam beberapa PLO ETAC untuk tujuan pencapaian pelajar.

🗸 Dapat dilihat di dalam silibus, helaian amali, nota, item penilaian

✓ <u>Memastikan kriteria berasaskan kepada</u> well-defined engineering problem (DP) dinilai didalam skala /attribute rubrik dan penilaian pelajar ✓ Dapat dilihat pada item penilaian, rubrik, helaian amali

NA

✓ Memastikan PLO10 (Communication) mengukur kriteria berasaskan kepada well-defined engineering activities (NA)



THANK YOU







